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WHAT WORKS? *Research into Practice*

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Research Monograph # 19

How can musical activities enhance early literacy development?

Placing Music at the Centre of Literacy Instruction

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Research Tells Us

Musical actitivities that strengthen phonological awareness build word recognition/word decoding skills.

Students who obtain higher scores on pitch tasks also obtain higher scores on phonological awareness tasks.

Preschool and elementary programs that combine musical activities and literacy instruction improve student scores on reading and writing tasks.

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Overture

From the time they enter preschool, all children have musical knowledge – they have preferences for certain kinds of music, some songs that they can sing and a basic understanding of rhythm and melody. Not only do musical activities captivate young children, but there is also emerging evidence which suggests that they can be a complementary and powerful support for literacy instruction.[1,2] Through musical activities, young learners are encouraged to focus their attention on various aspects of the sound structure of language which helps them to improve their listening skills and to develop metacognitive and metalinguistic skills. In the process, they acquire learning strategies that help them to learn written language.

This monograph begins with a survey of research which suggests that musical activities promote the development of auditory perception and phonological awareness as well as metacognitive and metalinguistic skills. It then presents four pedagogical interventions. By way of conclusion, it reiterates the importance of musical activities and music education in schools.

Research on Music and Literacy

The earliest research on music and literacy dates back to the 1950s.[3,4] Although there has been some interest in this field in the decades since then, research really began to develop in the 1980s. We review this literature below, highlighting six empirical studies which indicate that music has a positive effect on the development of the skills needed for phonological awareness, the recognition and decoding of words and the development of writing strategies.

The Literacy and Numeracy Secretariat is committed to providing teachers with current research on instruction and learning. The opinions and conclusions contained in these monographs are, however, those of the authors and do not necessarily reflect the policies, views, or directions of the Ontario Ministry of Education or The Literacy and Numeracy Secretariat.

Some pedagogical terms...

Phonological awareness is sensitivity to the sound structure of language and includes the ability to distinguish three levels of sound structure – rhymes, syllables and phonemes. Phonological awareness is an important early indicator of later reading ability.

Metacognition is the process of thinking about one's own thought processes. Metacognitive skills include the ability to make sense of information and monitor one's own learning.

Some musical terms...

Pitch is the "singing" quality of a sound that results from the frequency of vibrations. Sounds may be perceived as higher or lower and combined to create melody and harmony.

Rhythm is the length of sounds or of silences perceived in relation to the beat/meter framework of a piece of music. Sounds may be longer or shorter than the beat and may be combined to form rhythm patterns.

In two related studies,[5,6] students who obtained higher scores on pitch tasks also obtained significantly higher scores on phonological awareness tasks. Although these were small studies, involving 18 anglophone children in the UK (four to six years of age) and 13 francophone children in Quebec (five to six years of age), respectively, nonetheless the results are very interesting. Subjects who could distinguish pitch were also able to identify rhymes, syllables and phonemes.

A much larger related study by Anvari, Trainor, Woodside and Levy[7] involving 100 anglophone Canadian children (four to six years of age) arrived at similar conclusions. Moreover, these researchers found a statistically significant correlation between the ability to distinguish awareness of musical time length (duration) and phonological awareness, specifically, where phoneme categorization is concerned. Although the findings of these three studies are highly promising, they must be interpreted with caution: correlations alone do not make it possible to establish a causal link. We include a few quasi-experimental studies below so that the causality between learning music and acquiring written language skills at the preschool and elementary levels can be examined with the requisite caution.

Research shows that learning programs that combine music and literacy have a very positive effect. With a small group of four and five year olds, Standley and Hughes[8] delivered a 15-week music program with activities that involved word recognition, children's literature and spontaneous writing. They noted that their program promoted the development of reading and writing skills. No significant gain was recorded in the control group which took part in the school's regular activities, with no music. Register[9] replicated the study with a larger group ($n = 25$), with the difference that the control group took part in a music therapy program. The findings of this study reveal that both musical programs improved the reading and writing skills of the children in both groups. However, the music program developed by Standley and Hughes appeared to be more effective in relation to greater phonological awareness.

In a larger experimental study, Bolduc also examined the impact of a music program on the development of reading and writing skills of francophone kindergarten children ($n = 104$) in Quebec. In all, six classes participated in the research: three in the experimental group and three in the control group ($n = 53$). For 15 weeks, the classes in the experimental group took part in a French adaptation of the program developed by Standley and Hughes, while the classes in the control group took part in the Quebec Ministry of Education's music education program.[10] Analysis of the data revealed that both programs developed music skills. However, the experimental music program was more effective in developing writing skills, facilitating the students' use of syllables and phonemes, word recognition and spelling.

These studies indicate an impact not only from the standpoint of phonological awareness but also from the standpoint of word recognition, word decoding and writing strategies.

Recommendations: Four Innovative Teaching Practices

The research confirms the experience of many educators that when we integrate music into classroom practice, we help young students refine their auditory perception and phonological memory and develop their metacognitive and metalinguistic skills. These are particularly important for ensuring that young children have a strong foundation for reading development.

We recommend four sets of musical interventions which support the development of reading and writing skills.

Singing

One of the best activities for the acquisition of the language is singing. Every teacher should put together a repertoire of simple and familiar melodies with words that relate to the topics covered in class. At least 10 to 15 minutes should be devoted to these songs each day. Singing helps children develop their melodic skills (pitch) and rhythmic skills (duration) and has a direct impact on their recognition of rhymes and stress, or which syllable gets accented. It also stimulates attention and phonological memory.

When students are able to sing a song, incorporate the tunnel (or *radio*) approach into your practice. This practice consists of stopping the group at a strategic point in the song (at the end of a musical phrase, for example) and asking the group to continue singing mentally while keeping the melody and the rhythm in their head. (Start with short stretches, generally one phrase long.) When you send the signal, the students can begin to sing out loud again where the song would be at that point. This needs to start in very short segments first. The song, "There was a farmer had a dog, and Bingo was his name-o" is an example of this approach.

Using Percussion

Students who have less well-developed phonological memory and difficulty retaining words with many syllables may benefit from the activity described below. It is also ideal for kinaesthetic learners, because it uses an active approach to learning.

Choose a word and "play" it on a percussion instrument, emphasizing the accented syllable. Choose another word with the same number of syllables and ask the student to play it using a percussion instrument. Next, associate the rhythmical sequence with the syllable sequence (e.g., a sequence of two-syllable words in which the first sound is stressed: the child will say "TAble," "PENcil," "PAper").

Playing melody

This activity is similar to the previous one but it adds a melodic dimension that can be more complex for young learners.

Choose a word with three syllables or three phonemes ("pajamas" (pe-ja-mas), "grandfather" (grand-fa-ther), tomorrow (to-mor-row), for example) and pair it up with a three-note melody (you can use three consecutive notes in a scale such as *do, re, mi* or in an arpeggio such as *do, mi, sol*). Next, play this melody on a musical instrument (a xylophone or a piano), while "singing" the word. Ask the child to reproduce it, paying attention to his or her execution (segmentation of the word into syllables/phonemes, correct pitch). Next, repeat the activity dropping one note and therefore one syllable or phoneme (ideally, drop the last phonological unit to start with). The child then sings this sequence of notes exactly. Immediately following this, the child then names the unit that was missing from the melody (in a sequence of three notes in which the last note is deleted, the student will sing "prin-ci-" for "principal" and respond that the syllable "pal" was silenced).

In addition to developing melodic awareness (pitch) and singing skills, this exercise also develops skills in segmentation, deletion, categorization and blending of phonological units.

Implications for Practice

Tips for Classroom Practice

Put together a repertoire of simple songs that relate to the topics in class. You may use familar songs and just change the words to the topic at hand. Think, in particular, about songs that make use of rhyme (such as "Twinkle, Twinkle Little Star"). In this way, sound families (phonological awareness and memory) will be reinforced through the music.

Use percussion to engage your kineasthetic learners in building phonemic awareness.

Try tapping out basic rhythms to help students remember pronunciation. Model first, and then have the children repeat what you have done, clapping while they pronounce new vocabulary.

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Expressing the song in writing

Students' writing strategies can be developing by asking them to represent on paper the sounds of a piece of music with which they are familiar. This approach, called *notations musicales inventées* [inventive musical notation], is similar to an approach called *orthographes approchées* [approximate spelling].[11]

Choose a simple melody such as the alphabet song. Play it in short phrases on a musical instrument (such as a xylophone or piano). Working individually or in small groups (of two or three), the students are asked to express the song in writing with their own ideas. This activity develops their melodic and rhythmic skills and also their ability to extract and combine phonological units (syllables). Inventive musical notation or *notations musicales inventées* is creative; it offers a playful way to approach writing. Various articles and presentations, including those of Boldue[12] and Upitis,[13] offer practical and original ways of exploring this process with the students.

Coda

To conclude, we endorse the notion that music is an effective complementary approach that supports the early acquisition of reading and writing skills. According to the work of various researchers, music has many applications in learning and these applications are available to all teachers at the preschool and elementary levels. Unfortunately, compared to other subjects in the curriculum, music is given a modest role. Although this monograph demonstrates the role that music can play in literacy practices, we could have just as meaningfully discussed the role of music in mathematics education, where its impact is just as powerful. It is up to all of us in the education community to consider the importance of music education to overall child development and to give a greater emphasis on the use of music in the classroom. Just as music engages young learners it promises to support increased competencies in both literacy and numeracy development.

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